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Coffee grounds in swine rations

Abstract

As little as 10% of coffee grounds depressed the feed intake and growth rate of growing pigs and finishing pigs. Apparently, reduced growth rate resulted from lack of palatability rather than any toxic factor in the coffee grounds.; Swine Day, Manhattan, KS, November, 1973

Keywords

Swine day, 1973; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 203; Swine; Coffee grounds; Palatability; Growing pigs; Finishing pigs

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Coffee Grounds in Swine Rations

T. F. Balogun and B. A. Koch

Summary

As little as 10% of coffee grounds depressed the feed intake and growth rate of growing pigs and finishing pigs. Apparently, reduced growth rate resulted from lack of palatability rather than any toxic factor in the coffee grounds.

Introduction

Large quantities of coffee grounds are collected where instant coffee is manufactured. The coffee grounds contain approximately 12% crude protein and 20% ether extract. They also contain approximately 35% crude fiber. The fiber is high for a swine feed but high ether extract content might compensate for the fiber content. Protein quality appears to be similar to that of grain; therefore, coffee grounds might replace some grain in a swine ration.

Procedures and Results

Two trials involving 106 pigs (Yorks, Hamps, and Durocs) were conducted to study performances of pigs on diets containing different levels of coffee grounds. Trial I was conducted in a controlled-environment nursery building; Trial II, in an open-front finishing unit. Both buildings have slatted floors with automatic waterers and self-feeders in the pens.

Trial 1. Seventy pigs (barrows and gilts) averaging approximately 35 pounds were assigned according to breed, weight, and sex to five levels of coffee grounds (0, 10, 20, 30, and 40%). The basal diet (0% coffee grounds) contained 69.7% sorghum grain, 26.6% soybean meal (44%), and was fortified with necessary minerals, vitamins, and antibiotic premix at recommended levels. There were seven pigs in each group and each group was replicated. All rations were pelleted (3/8" diameter). The trial was planned to be 35 days and all pigs were weighed weekly. A palatability problem was noticed where percentages of coffee grounds were high, so 20, 30, and 40% levels were readjusted after 14 days to 15, 10, and 0%, respectively, for another 21 days. Coffee grounds were used as an energy source only on a pound-for pound basis. Results

from the first 14 days are shown in the upper part of table 9.1.; from the last 21 days, in the lower part. Apparently no toxic factor was involved as pigs removed from the 40% ration did well on the control ration. No pigs died despite severely reduced feed intake in some groups the first two weeks. After 35 days all pigs appeared to be healthy, but none were then getting more than 15% coffee grounds.

Table 9.1. Percentages of Coffee Grounds Indicated Replacing Grain for Growing Pigs

First 14 days	0%	10%	20%	30%	40%
No. pigs	14	14	14	14	14
Avg. initial wt., lbs.	33.2	34.6	33.7	32.7	33.1
Avg. 14 day wt. gain, lbs.	16.3	12.4	2.1	0.1	-3.0
Avg. daily intake, lbs.	2.29	1.95	1.17	0.94	0.73
Feed/gain	1.96	2.20	7.80	-----	-----
Next 21 days	0%	10%	15%	10%	0%
Avg. initial wt., lbs.	49.5	47.1	35.8	32.8	30.1
Avg. 21 day wt. gain, lbs.	29.9	26.5	21.3	22.5	30.8
Avg. daily intake, lbs.	3.08	2.83	2.21	2.15	2.66
Feed/gain	2.16	2.24	2.18	2.01	1.81

Trial II. Thirty-six pigs (barrows and gilts) averaging approximately 115 pounds were assigned by breed, weight, and sex to 0, 10, or 20% coffee grounds. The basal diet (0% coffee grounds) contained 81.8% sorghum grain, 15% soybean meal (44%), and minerals, vitamins, and antibiotic premix at the recommended levels. Coffee grounds replaced sorghum grain pound for pound. Pigs were in groups of six each replicated. The test period was 63 days.

Results are summarized in table 9.2. Rate of gain was depressed as percentage of coffee grounds increased. Feed intake was depressed only slightly by 10% coffee grounds but the feed/gain ratio indicates that energy in the coffee grounds was not used efficiently.

Table 9.2. Percentages of Grounds Indicated Replacing Grain for Finishing Pigs.

	0%	10%	20%
No. pigs	12	12	12
Avg. initial wt., lbs.	115	114	119
A. D. G., lbs.	1.62 ± .06 *	1.47 ± .08 *	0.80 ± .11 *
Daily feed intake, lbs.	5.90	5.82	4.26
Feed/gain, lbs.	3.69	3.96	5.32

*Standard Error of Mean.